

Customer No.: 31561
Application No.: 10/708,488
Docket No.: 12476-US-PA

AMENDMENTS

Please amend the application as indicated hereafter.

To the Claims :

1. (original) A method of forming a bond microstructure, comprising:
sequentially forming a tin layer and a gold layer on one of two members, a %
weight ratio of tin to gold being 20:80 having a variation range of about $\pm 3\sim 4\%$; and
treating the tin layer and the gold layer with a first temperature or a second
temperature to form bond microstructures having different characteristics, wherein when
the tin layer and the gold layer are treated with the first temperature, the bond
microstructure will have a layered structure and when the tin layer and the gold layer are
treated with the second temperature, the bond microstructure will have an eutectic
structure.
2. (original) The method of claim 1, wherein the first temperature is no more than
280°C.
3. (original) The method of claim 1, wherein the bond microstructure having the
layered structure comprises an AuSn layer and an Au₅Sn layer.
4. (original) The method of claim 1, wherein the second temperature is higher than
280°C.
5. (original) The method of claim 1, wherein the bond microstructure having the
eutectic structure comprises AuSn and Au₅Sn.
6. (cancelled)

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7. (original) The method of claim 1, wherein the the gold layer is formed over the tin layer.

8. (original) The method of claim 1, wherein the tin layer is formed over the gold layer.

9. (original) The method of claim 1, wherein the tin layer is formed by performing an electroplating process, an evaporation process, an electroless plating or a sputtering process.

10. (original) The method of claim 1, further comprising forming an adhesion layer, a barrier layer and a wetting layer on one or both of the two members before forming the tin layer and the gold layer on one of the two members.

11-13. (cancelled)

14. (original) The method of claim 1, wherein the two members comprise a flip chip and a substrate.

15. (original) The method of claim 1, wherein the two members comprise a photo-electronic device and a substrate.

16. (original) A method of forming a bond microstructure, comprising:
sequentially forming a tin layer and a gold layer on two members respectively, the % weight ratio of tin to gold being 20:80 having a variation range about $\pm 3\sim 4\%$; and

treating the tin layer and the gold layer with a first temperature or a second temperature to form bond microstructures having different characteristics, wherein when the tin layer and the gold layer are treated with the first temperature, the bond

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microstructure will have a layered structure and when the tin layer and the gold layer are treated with the second temperature, the bond microstructure will have an eutectic structure.

17. (original) The method of claim 16, wherein the first temperature is no more than 280°C.

18. (original) The method of claim 16, wherein the bond microstructure having the layered structure comprises an AuSn layer and an Au₅Sn layer.

19-20. (cancelled)

21. (original) The method of claim 16, wherein the step of treating the tin layer and the gold layer with the first temperature of the second temperature comprises heating under pressure or a reflowing method.

22. (original) The method of claim 16, wherein the tin layer is formed by performing an electroplating process, an evaporation process, an electroless plating process or a sputtering process.

23. (original) The method of claim 16, further comprising forming an adhesion layer, a barrier layer and a wetting layer on one or both of the two members before forming the tin layer and the gold layer on the two members.

24-26 (cancelled)

27. (original) The method of claim 16, wherein the two members comprise a flip chip and a substrate.

28. (original) The method of claim 16, wherein the two members comprise a photo-electronic device and a substrate.